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CHAPTER ELEVEN

RAILROAD COORDINATION

11-1.0 INTRODUCTION

11-1.01 General

Railroad coordination is required on all projects which cross or are adjacent to a railroad and which potentially have an impact on the railroad facilities or operation. This includes roadway design features (e.g., roadway widening, earthwork) which obviously require work on railroad right-of-way, and not-so-obvious impacts (e.g., maintenance of traffic, contractor work activities during construction) which may impact the safe operations of the affected rail line.

The highway and railroad networks are both vital components of our transportation system. Each includes its own unique set of design, construction, operational and maintenance considerations. Where these two modes intersect, are adjacent to, or otherwise encroach on each other, problems may develop if the operations of one mode affect the other. Highway agencies and railroad companies are each generally responsible for constructing, maintaining and operating their own facilities. However, close coordination and cooperation between the two is needed where they interact to ensure that the design, construction, operation and maintenance of both modes are compatible.

Within INDOT, the Design Division's Railroad Unit is responsible for coordinating with railroad companies that are affected by proposed highway projects administered by the Department, regardless of whether the project is designed by the Division of Design, INDOT district offices, consultants, or local public agencies. The Railroad Unit does not generally perform highway design or railroad design functions and does not assume the responsibilities of the designer. Rather, the Unit is responsible for the following:

1. initiating contact with the railroad;

2. providing technical advice and guidance to both the highway and railroad designer;

3. facilitating a mutually satisfactory resolution of any conflicts or problems between the highway project and the railroad; and

4. administering the Railroad Agreement and reimbursement process for railroad companies involved in highway projects.

11-1.02 Responsibilities

The various responsibilities of highway agencies and railroad companies are documented in detail in State and Federal laws and regulations. It is a complex and sometimes confusing set of rules and responsibilities. The *Indiana Design Manual* does not repeat, replace or modify these laws and regulations. This Chapter briefly discusses some of the more common considerations in the railroad coordination process. The Railroad Unit should be notified of any conflict between the information presented in this *Manual* and State/Federal laws and regulations.

The following general information applies to the railroad coordination process.

1. Reimbursement. In general, when any highway agency initiates a proposed project, the agency must coordinate with any railroad company that might be affected by the highway project and, in general, the agency is responsible for reimbursing any costs the railroad company incurs in adjusting its facilities or operations to accommodate the highway project.

   Likewise, if the railroad company initiates the work, the railroad is generally responsible for coordinating with the affected highway agency and for reimbursing any costs incurred by the highway agency.

2. Maintenance. Once a facility has been constructed, the railroad company is generally responsible for maintaining the crossing surface, the crossbucks, any train-activated warning devices, and its own track, ties, ballast, communication lines and other facilities. The highway agency is responsible for maintaining the approach roadway at the crossing, advance warning signs, pavement markings, stop signs and/or other traffic control devices at the crossing.

3. Right-of-Way. At most highway/railroad crossings, the railroad company owns the right-of-way, although there are some exceptions, predominantly for industrial spur track crossings. Although this does not prevent one party from crossing the other, it is an important consideration for any highway project.

4. Regulatory Authority. At INDOT, regulatory authority over railroad companies resides in the Multi-modal Transportation Division's Railroad Section. This includes the authority to order construction of new highway/railroad crossings, to relocate existing crossings, to eliminate crossings, and to change the type of warning device at crossings. Therefore, highway projects may occasionally require review and approval of the Railroad Section before proceeding to construction. The Design Division's Railroad Unit can also advise and assist the highway designer when this approval is needed.

11-2.0 RAILROAD COORDINATION PROCESS

11-2.01 General

Highway projects may have simple or complex impacts on railroad operations and facilities. These include right-of-way encroachments, conflicts with railroad communication and signal lines, at-grade crossings, changes in track alignment and grade, interconnected highway and railroad traffic signals, grade separation structures, etc. In addition, every railroad company has a different organizational structure and differing abilities to respond in a timely manner to the preliminary engineering (PE) and construction activities needed to accommodate highway projects. Because of the variety of potential conflicts, the wide variation in potential scope for each type of conflict, and the internal variations among railroad companies, no single railroad coordination process or timetable is applicable to every highway project.

The coordination process is not initiated until the designer informs the Design Division's Railroad Unit that a potential conflict exists between the highway project and the railroad. The Railroad Unit will then review the plans, discuss the project with the designer, briefly discuss it with the railroad company, and advise the designer what information is needed (and at what point in design) before the Railroad Unit can formally begin the coordination process with the railroad company. Even if some coordination occurred in the scoping stage of a highway project, it is essential that the designer contact the Railroad Unit to ensure that coordination with the railroad company proceeds in a timely manner.

INDOT highway project schedules include an item for Railroad Coordination. The target completion date is generally just before the Ready for Letting (RFL) date. It is not, however, an activity that should occur just before a project is ready for letting, nor does it mark the end of all railroad coordination on a project. Instead, it is an indication that railroad coordination work is sufficiently advanced for the highway project to proceed to the letting stage. The Railroad Unit determines if the railroad coordination is complete and records this in the project schedule. This indicates the following:

1. the highway plans and specifications are acceptable (or have only pending minor revisions) to the railroad company;

2. all information needed from the railroad company for the highway project to proceed to letting has been received (or is expected in the near future);

3. the railroad company has completed (or nearly completed) all preliminary engineering work needed for the highway project to proceed to letting; and

4. regulatory approval (for new or relocated highway/railroad crossings) has been received from the Multimodal Transportation Division's Railroad Section (or at least no major objections are expected from the railroad company).

The highway project manager or designer must contact the Railroad Unit to request railroad coordination work on a highway project. The highway project manager or designer must also periodically inform the Railroad Unit of the status of the highway project and of any changes that might affect the railroad or the railroad coordination process.

The highway project schedule must allow sufficient time for the railroad company to perform its engineering and construction relative to the overall highway project. Although the Department reimburses the railroad for these costs, each company has unique constraints on its manpower and other resources necessary to accommodate a highway project. The highway project manager must coordinate with the Railroad Unit to ensure that the anticipated project design and letting and construction schedules are compatible with the probable timetable that can be expected from the railroad company on specific projects. For some projects, the railroad work may control the overall highway project schedule, and it may set controlling limits on how and when the highway contractor may proceed with construction of the highway project and on what type or sequence of construction activities are permissible.

11-2.02 Process Steps

Figure 11-2A, Railroad Coordination Process, presents a flowchart of the typical railroad coordination process. The following discussion reflects the typical aspects of railroad coordination; however, experience and judgment on specific projects or with specific railroad companies is essential. The top of Figure 11-2A presents the major steps in highway project development. The major corresponding activities for railroad coordination are provided below the highway project process.

11-2.02(01) Scoping Process

If the project includes constructing a railroad bridge over a highway or local road or if it involves changes to the alignment or profile of the railroad tracks or if consolidation of multiple tracks could reduce structure costs or otherwise improve the roadway, then railroad coordination must begin during the project scoping stage. The project manager or scoping engineer must contact the Railroad Unit and request the initiation of the railroad coordination process. The Railroad Unit will contact the railroad company if needed for input on the various project alternatives, their feasibility from the railroad's perspective, the potential project impact on railroad facilities and operations, very preliminary cost estimates from the railroad company to evaluate project alternatives, and any

information on changes in facilities or operations that the railroad company may have independently planned that could affect the highway project scope.

In general, it is advantageous to initiate railroad coordination too soon rather than too late. With the proper information up front, informed decisions can be made on project scope to avoid subsequent unexpected events that may require substantial additional cost and time to redesign or to accommodate during construction. In general, never make any assumptions on railroads and potential project scope or railroad involvement. Even though the involvement appears to be minimal or non-existent, if there is a railroad within or near the proposed highway project, the project manager or scoping engineer should request a brief review by the Railroad Unit. Although the highway project may appear to have little or no impact on the railroad, potential changes in facilities or operations by the railroad company may have a significant impact on the scope of the proposed highway project. Even if no actual highway construction encroaches on or requires changes to railroad facilities, construction techniques, equipment or sequencing (or maintenance of traffic outside the project limits) may impact on railroad operations, require the use of a flagman by the railroad company during construction of the highway project, or require other actions on train operations.

Some project scoping issues can be addressed directly by the Railroad Unit based on its overall experience and knowledge of specific railroad companies. Other issues will require coordination with the railroad company to obtain the needed information. It may require considerable time to receive a response, depending on the complexity of the impact and the specific railroad company involved. In some highly complex situations, the Railroad Unit may initiate contact and then, subsequently, request that the appropriate staff at the railroad company work directly with the highway project manager or scoping engineer to resolve the scoping issues.

11-2.02(02) Preliminary Design

Early in the preliminary design process, the designer (or project manager) for the highway project must contact the Railroad Unit to discuss the project. The applicable railroad information is needed to properly select a structure size and type and to establish the line and grade of the highway and/or railroad.

Neither a highway bridge over a railroad nor a railroad bridge over a highway can be designed without identifying the number of railroad tracks and determining whether a "maintenance or service road" must be provided for the railroad. Elsewhere, the *Indiana Design Manual* discusses the clearances and geometrics for railroad bridges (see Chapter Fifty-nine). These should be considered minimal guidelines, and these criteria do not replace requirements which may be specific to individual projects or railroads.

The project design must incorporate a track alignment and profile that is acceptable to the railroad company. Railroad track work is based on special design criteria, which is distinct from that familiar to most highway designers, and individual railroad companies may have criteria specific to their individual needs that differ from typical AREMA specifications.

It is necessary to determine if rail traffic must be maintained during construction or if it can be detoured or halted. If traffic must be maintained, it may require a temporary railroad bridge (and connecting track) over a highway, a temporary at-grade crossing, constructing the new railroad bridge on new railroad alignment in conjunction with a permanent track relocation, or operating the railroad on its existing track including careful coordination and sequencing of highway construction in conjunction with continuing rail operations on that track.

Some project preliminary design issues can be addressed directly by the Railroad Unit based on its overall experience and knowledge of specific railroad companies. Other issues will require coordination with the railroad company to obtain the needed information. It may require considerable time to receive a response, depending on the complexity of the impact and the specific railroad company involved. In some highly complex situations, the Railroad Unit may initiate contact and then, subsequently, request that the appropriate staff at the railroad company work directly with the highway project manager or design engineer to resolve the preliminary design issues. The Railroad Unit should be informed of all such direct contact developments, and the Unit shall receive copies of all written correspondence.

11-2.02(03) Field Check/Design Approval Stage

The highway project manager should submit plans to the Railroad Unit at the field check stage. On projects where a preliminary and a final field check are normally held, the submission of plans should be of the preliminary field check stage. The Railroad Unit will review the plans for any obvious issues and will ensure that the information the railroad company will need for its review and/or design is included in the plans.

If not previously performed in the scoping or preliminary design stages, the Railroad Unit will formally authorize the railroad company to work on the project and incur reimbursable expenses. Note that, however, this authorization is the culmination of a separate process for funding and authorizing railroad preliminary engineering work. Key points of this process include ensuring the following:

1. that the highway project is properly programmed for railroad work in the proper fiscal year;

2. that Federal funds (if being used) have been obligated for the railroad work on the project;

3. that an Agreement exists between the State and local agency (for local projects using Federal funds) for the necessary railroad work; and

4. that a purchase order has been requested and received allowing payment of railroad expenses for the project.

An omission of any of these or their related steps can lead to delays in authorizing the railroad company to begin preliminary engineering work, and it may ultimately delay the highway project.

The Railroad Unit will submit the plans to the railroad company for review and comments and request that the company perform any necessary railroad preliminary engineering and request that the railroad submit the following:

1. the flagging and insurance information which will eventually be needed as part of the highway project;

2. special provisions concerning the railroad for construction of the highway project; and

3. cost estimates for all railroad work necessary to accommodate the highway project.

If the highway project involves creating a new highway/railroad crossing (where none existed before) or relocating an existing crossing, the Railroad Unit will, at this time, provide guidance to the highway project manager or designer on submission of a formal petition to the Multimodal Transportation Division's Railroad Section to request regulatory approval for the proposed crossing and warning devices.

The Railroad Unit and/or the affected railroad company may attend the highway project field check, or they may visit the site independently, either together or separately, depending on the scope and extent of railroad involvement and the specific railroad company involved.

As the Design Approval stage approaches, the highway project manager or design engineer should closely communicate with the Railroad Unit. Although the railroad company will sometimes submit all needed information and comments back to the Railroad Unit by the Design Approval date, this may not be the case. The Railroad Unit may need to contact the railroad company (generally by telephone) to determine if the railroad has any significant problems with the overall design concept for the project at the Design Approval stage. If there are no major objections from the railroad company, the highway project can proceed to the final plans design stage. If the railroad has serious concerns on the acceptability of the plans, work on final highway plans and possibly design approval should be delayed until the major issues are resolved. This typically occurs for bridge projects and projects that require changes to railroad alignment and grade. It may also be a factor in creating a new at-grade highway/railroad crossing where none existed before, and the railroad company has strong objections that may affect the regulatory process for receiving approval for the crossing.

11-2.02(04) Final Plans Stage

While final work on the highway plans is being completed, a number of railroad coordination activities must also be completed for the overall project to remain on schedule and be ready to proceed with highway letting activities. These include the following:

1. If not previously received, the railroad company must submit its detailed project cost estimates and drawings and details of its proposed work, as needed. The Railroad Unit will use this and other information to prepare a legal Agreement between the State and the railroad company for the necessary railroad work to accommodate the highway project. The Agreement requires both railroad company and INDOT approval to proceed.

2. If not previously received, the railroad company must submit its detailed information on railroad flagging and insurance requirements for the INDOT highway contract and contractor for highway construction work at or near the railroad.

3. No project with a new or relocated at-grade highway/railroad crossing should proceed beyond the final plans stage until regulatory approval for the new crossing is received from the Multi-modal Transportation Division's Railroad Section.

11-2.02(05) Ready for Letting Process

The highway project manager or designer must submit final plans and specifications (at least for items that affect the railroad) to the Railroad Unit. The Railroad Unit will submit the plans and specifications, where appropriate, to the railroad company for approval. Desirably, for items that directly affect railroad facilities or operations, the railroad company will accept the proposed highway plans and specifications at this stage. However, lacking full acceptance, the letting and construction process may proceed, if there is some assurance that any items still in dispute are relatively minor and that they can be addressed satisfactorily without subsequent delay to the highway contractor.

If not previously completed, the Railroad Unit will also finalize the railroad Agreement and the flagging and insurance items at this time.

When the plans, specifications, Agreement and flagging/insurance activities are completed, the item in the highway project schedule for Railroad Coordination is marked complete. However, more accurately, this represents the end of the preliminary engineering phase of railroad coordination and indicates that it is reasonable to proceed to the letting and construction phases of the highway project.

Although it is desirable to complete all of these activities before proceeding to highway letting and construction, this is not always practical or reasonable. For example, it may be reasonable to proceed with a major road reconstruction project without railroad coordination fully completed if the railroad work is incidental to the overall project and the railroad company has no basic objections (such as line, grade, bridge clearances, etc.) to the overall project concept, and it is reasonably certain that any minor objections can be addressed and any railroad construction completed without causing delay to the overall highway project. These are discretionary decisions, and the highway project manager must work closely with the Railroad Unit before proceeding to letting or construction when Railroad Coordination in the project schedule is not marked complete.

11-2.02(06) Letting Stage

For the highway project, this involves soliciting bids, selecting a contractor and authorizing the contractor to initiate work on the project.

For railroad coordination, it involves formally authorizing the railroad company to proceed with any necessary construction activities to accommodate the highway project. However, this authorization is the culmination of a separate process for funding and authorizing railroad construction work. Key points of this process include ensuring the following:

1. that the highway project is properly programmed for railroad construction in the proper fiscal year;

2. that Federal funds (if being used) have been obligated for the railroad work on the project;

3. that the necessary State funds (if any, for State projects) are available;

4. that, for local projects, an Agreement exists between the State and local agency for the necessary railroad work;

5. that the necessary local funds (if any) for railroad construction have been received and deposited into an escrow account for the project; and

6. that a purchase order has been requisitioned and received to allow payment of railroad construction expenses.

An omission of any of these or their related steps can delay authorizing the railroad company to begin work, and this may ultimately delay the highway letting or construction of the project.

11-2.02(07) Construction Stage

If not previously performed, the railroad company must be authorized to do any necessary railroad construction and flagging work.

Project construction requires careful coordination among all parties. However, in general, the contractor and INDOT's construction project manager are responsible for the day-to-day coordination during construction. In some cases, railroad construction work must proceed in advance to clear an area or otherwise prepare it to accommodate the work of the highway contractor. In other cases, the contractor must perform advance work before the railroad work can begin or be completed. At other times, both the railroad company and contractor must be working concurrently.

Further, some contractor activities will require railroad flagging for safety of the contractor, railroad and/or public, and the railroad company must have sufficient advance notice to ensure that a flagman is present. This again requires close day-to-day coordination in the field, which is the responsibility of the contractor and field personnel.

Where problems develop that cannot be resolved satisfactorily in the field, the Railroad Unit is available for assistance.

When the contractor has finished all work in the vicinity of the railroad and the railroad company is satisfied that it has no claims against the contractor, the railroad company will sign a release to relieve the contractor of any further responsibility and of the need for any further railroad protective liability insurance. Generally, this can be addressed between the contractor and the railroad company, but INDOT requires a file copy for its records and to close out the project.

Final inspection and approval of railroad work is generally limited to items which directly affect highway operations and safety, such as warning devices and surface work for at-grade crossings. Where the work only affects the railroad, such as communication and signal lines or track work, INDOT need not inspect nor approve the work. Only a general review is necessary to ensure that the billed time, material and equipment costs appear consistent with the work that was actually performed by the railroad for the highway project.

11-2.02(08) Project Complete

If not previously received, closing out a project requires confirming that the railroad company has granted a release to the contractor for the highway project. It also requires implementing the steps of a separate process for the final railroad invoice on the project. This process starts when the railroad company submits a comprehensive, final invoice for the project that itemizes all salaries, material and equipment billed to the project and provides adequate documentation for those costs. The invoice is reviewed by both the Railroad Unit and the INDOT district office, it is audited by the

Accounting Division, any problems are resolved, a final payment is made to the railroad company (or refund received), and the project officially is closed out.

The final invoice is actually the culmination of a series of periodic preliminary engineering and construction progress invoices received from the railroad company during the project and reviewed as needed by the Railroad Unit and/or the INDOT district office. Because progress invoices are estimates of progress, they do not generally require documentation for every billed item but, rather, a brief review to ensure that the amounts billed appear generally consistent with work performed by the railroad company to date on that project. Detailed documentation is not generally required until the final invoice.

11-2.03 Conclusion

This section presents only a brief introduction to the railroad coordination process. The actual sequence on any specific project will depend on the type of highway project, the extent of the railroad involvement, the internal organization of the specific railroad company that is involved, and the desired schedule of the highway project relative to any constraints on railroad companies to provide the manpower and resources to accommodate highway projects. This is subject to their internal work loads and priorities and the importance of the highway project relative to other current highway projects that affect that railroad company.

Main line railroads, such as CSX Transportation, Norfolk Southern, and Conrail, operate over territories of many states. They must continually balance their resource needs and projects against those in INDOT and those of many other State and local transportation agencies. Short line railroads, although often locally owned and with limited territories, have different problems because they seldom have the engineering expertise or field personnel to quickly react to the Department's design and construction needs. They must often use consultants and contractors of their own selection (subject to INDOT approval) to accommodate highway projects.

The Railroad Unit does not generally have the authority to direct railroads to accommodate highway projects and/or meet the Department's desired project deadlines. Although, arguably, this is inherent within INDOT's overall authority to provide and maintain a safe highway transportation system, State law does not clearly provide this authority. The Railroad Unit depends on maintaining a good working relationship with each railroad company and maintaining close coordination as needed on specific highway projects. There are a number of key steps that must be completed, depending on the type of project and railroad involvement. However, the exact sequencing and time needed for each step may vary among projects and railroad companies.

The greater the impact on the railroad facilities, the earlier in the project that coordination must begin. Railroad coordination, even for routine or relatively minor involvement, is likely to require 6 to 12 months before the highway project can proceed to letting. Further, depending on the type of

construction that must be performed, the railroad company may need up to 6 months of advance notice to order and stockpile critical materials needed for construction.

Finally, railroad coordination must be considered an essential part of all projects, even those which may initially appear to have no railroad involvement. For example, even bridge painting contracts or road projects with paving exceptions may require railroad coordination. If a highway project crosses, is adjacent to, is in close proximity to or has a detour or other traffic control plan that crosses a railroad, or the contractor has a work plan that places them on, over or near railroad tracks at any time, assume that railroad coordination is needed and contact the Railroad Unit as soon as possible.